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THE KIDNEY FUNCTION IN 100 CASES OF HYPERTENSION.

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Every new feature of diagnosis has in turn been acclaimed as marking a new epoch in the progress of medical science and research. To each new device for gaining additional information regarding the mechanism of the body functions has been given a credit and a promise to which most of them have no claim, and which they usually fail to fulfill. Not that the newer and more accurate methods and instruments for studying bodily functions are not making definite and, in some instances, noteworthy contributions to our knowledge of physiology, both normal and abnormal, but it is equally true that the value assigned to the possibilities of some of these methods has not been realized. The enthusiasm accompanying the introduction of new methods of diagnosis frequently fails to give to such new methods their limited, though possibly great, importance and a natural reaction of distrust follows, resulting in a failure to give the same methods an importance really due them.

The introduction of the sphygmomanometer into clinical medicine opened up a field of investigation previously considered only of laboratory interest. The fervor following its early use and the immense significance assigned to the finding of hypertension are commonplace knowledge, so established in general use that the laity are quite familiar with the expression "high blood pressure." Surely no attempt is made to belittle the use of the instrument, for no physical examination can now be considered adequate which fails to take cognizance of the degree of arterial tension, and a suggestion so obtained of the stress and load on the cardiovascular system is an important item of information.

The very frequent finding of an elevated blood pressure in chronic nephritis led earlier observers to believe hypertension almost pathognomonic of chronic nephritis. The even casual observation of elevated blood-pressure readings thereupon assumed an unwarranted significance. Other observers noted the frequency of increased readings in nervous diseases to which the diagnosis of some form of arteriosclerotic psychosis was wont to be attached. This led to a feeling that hypertension was practically essential to such a diagnosis of the mental picture, and its value has probably been over-emphasized in text books of psychiatry, many of which require that hypertension be present for a diagnosis of arteriosclerotic mental diseases. However, emphasis should again be laid on the fact that the very finding of elevated blood pressure entails careful consideration of the possibility of renal involvement in patients presenting themselves for symptoms consistent with such a possibility.

While it is true that great and possibly too great emphasis has been laid on the relation of hypertension and nephritis, more general observations of blood pressure in general hospitals and private practice have led to a clearer understanding of its significance and an appreciation of the fact that hypertension is common and frequently unassociated with any demonstrable evidences of renal insufficiency.

The present communication is not concerned with a discussion of the causes of high blood pressure or its treatment, but is a report of the study of 100 cases of elevated blood pressure in which some idea of the kidney function has been obtained. The inquiry is into a group of cases of varying ages, for the selection of which the blood pressure values alone have been used as a criterion. Unless otherwise noted, each patient was in apparently good condition, none of them having any edema, fever, dyspnea or other conditions within a period which could be considered as influencing the present data, and all were up and about, most of them engaged in working about the wards, dining rooms, farm or industrial rooms. None of the patients were anemic, the hemoglobin values ranging from 70-100%, and the blood cytology presented nothing of note.

The observations which were made consisted of the blood urea, expressed as blood urea nitrogen, the rate of elimination of phenolsulphonephthalein, the urine analysis, and the blood pressure readings. The blood urea nitrogen was determined by the Marshall urease method, using the aeration and titration procedure. The determinations were made in each instance on 5 cc. of citrated blood. The blood-pressure readings were obtained in mid-afternoon for the most part, and the values given represent the mean of a number of readings taken at intervals over a period of several months. The phenolsulphonephthalein test of Rountree and Geraghty was used in the usual manner.

It may be noted that the blood in each instance was drawn before breakfast, about twelve hours after the preceding meal. The plan fails, of course, in securing evidence of a retarded excretion of urea, which might be considered as evidence of a slightly diminished renal efficiency. But the plan does give values which are largely independent of the diet and values which can be considered more or less characteristic of the individual, for determinations made at different times on the same individual are usually quite approximate values. No attempt has been made to determine the rate of excretion of urea by the kidneys, due to the difficulties of administration of such studies. The functional response of the kidneys, as indicated by the use of the two-hour and similar tests, was not investigated.

DISCUSSION OF THE RESULTS.

Since the basis of selection of this group of patients for study was that of elevated blood pressure (150-155 mm. or over), it is worthy of note to learn what proportion of the total hospital population show the finding. Not all the cases of high blood pressure in the institution were included in this inquiry, but about 20% of the patients in the hospital show readings considered as higher than normal (systolic 110-135 mm., diastolic 80-90 mm.), though the values frequently range from 140-160 mm. systolic, 85-95 mm. diastolic and show considerable variation from time to time.

Another point of interest is the ages of the patients. It will be noted that only 20 of the 100 cases studied were below 50 years of age, the ages ranging from 28 to 88 years. The high incidence of mild degrees of renal insufficiency during and following the fifth decade allows one to predict in any group of individuals of this size the presence of a number of cases who will show some impairment of kidney function.

The possibility of a study of this character on a group of state hospital patients being considered inapplicable to outside conditions seems unlikely. While it is true that all of the patients studied were psychotic, the mental disease can hardly be considered as influencing the renal function. Nor can it be said that an impaired kidney function or a high blood pressure served to any degree as a definite factor in their mental diseases, and hence lend to the data a feature which would compromise any deductions which could be made from the study. The incidence of high blood pressure among psychotic individuals is probably little different from that found in the general public of the same ages. The wear and tear of competition, worry, intemperance in general, the struggle for a livelihood and other nervous strain placed upon individuals in the general public may possibly tend to place more pro rata cases of hypertension in the public at large than are found in state hospitals. However, the matter of relative frequency in the general population of the feature studied here need call for little consideration.

Using the blood urea nitrogen as a criterion, there is found a mild degree of retention in 37 of 94 cases (39%) in which this determination was made. The figure which one considers as normal for blood urea influences the opinion as to whether there is or is not retention. The values found on patients here whose kidney function is regarded as normal rarely exceed 15.0 mgs. per 100 cc. blood, the blood being drawn as here, some 12-14 hours after the preceding meal. This figure is at variance with the values given by several observers, but under the conditions of diet and hospital routine here it is unusual to find a blood urea nitrogen over 15.0-16.0 mgm. in cases free from possible renal insufficiency. The usual values range from 9.0 to 14.0 mgm, per 100 cc. of blood. In the group studied there were 29 of the 94 cases (31%) who showed a value of 16.0 mgm. or higher. There is evidently little if any relationship between the blood urea nitrogen and the blood pressure, either the systolic or diastolic pressure, or the pulse pressure. For instance, of 61 cases showing a systolic blood pressure of 170 mm. or higher, in which the blood urea nitrogen was determined, 36, or 58%, showed values of 15.0 mgm. blood urea nitrogen or less per 100 cc., and 43, or 70%, showed values below 16.0 mgm., whereas 23 cases, or 42%, showed values of over 15.0 mgm. and 18, or 30%, showed values over 16.0 mgm. Of the 50 cases showing diastolic readings of 100 mm. or more, 30 cases, or 60%, showed blood urea nitrogen values of 15.0 mgm. or less, and 36, or 72%, showed values below 16.0 mgm., while 20 cases, or 40%, showed values over 15.0 mgm., and 14 cases, or 28%, of the number gave values over 16.0 mgm.

When the rate of elimination of phenolsulphonephthalein is examined, it is found that of the 89 patients in whom this observation was made, there were 45 instances in which the dye excretion was established as 40% or less, representing approximately 50% of the cases. Since there were 15 instances where the value was 40%, there were 30 cases having a value below 40%, 34% of the cases on whom the value was obtained. This figure in a few instances was obtained not long before death, but this number is the same as those in whom there was some question as to the low finding, hence they check each other.

A comparison of the rates of elimination of the dye with the blood-pressure readings fails to suggest any relationship between the excretion and either the systolic or diastolic figures. There were 51 cases showing a systolic pressure of 170 mm. or over in which the dye elimination was satisfactorily ascertained, and of these, 28 cases, or 55%, showed a figure of 40% elimination or lower, 19 cases (37%) showed values below 40%; the others showed a value of elimination of 45% or greater. Very similar figures were obtained on comparison of the elevated diastolic blood pressure figures, for of the 44 cases showing an elevated diastolic value (100 mm. or higher), 24, or 55%, of the cases showed a phthalein output of 40% or less; 17, or 39% of the cases, showed a value below 40%.

Considering the inter-relationship of the blood urea nitrogen values and the corresponding rates of elimination of phenolsulphonephthalein where both determinations were made on the same patient, it will be noted that in 29 cases showing a blood urea nitrogen value of 16.0 mgm. or over, 90% of the same patients showed a dye excretion of 40% or less, only three such patients showing an elimination of over 40%. There were 8 cases showing blood urea nitrogen values ranging between 15.0 and 16.0 mgm. per 100 cc., and of these, 6 showed a phthalein figure of 40-50%. It seems quite evident that the transition zone from normal to abnormal blood urea nitrogen is from 15.0 to 16.0 mgm., and closely corresponds with the phthalein excretion values of 40 to 50%.

There were 82 cases in which both the blood urea nitrogen and the phenolsulphonephthalein elimination were ascertained, and among these there were 23 cases (28%) which had a nitrogen figure of 16.0 mgm. or higher, and a phthalein of 40% or less as compared with three cases having a nitrogen value of 16.0 mgm. or over and a phathalein of over 40%.

Twenty-nine of these 82 cases (35%) had urea nitrogen figures of 15.0 mgm. or less, with the dye excretion 40% or less, and 5 with the dye excretion over 40%. The inverse relation of these two factors is well illustrated in these cases and bears out clearly the claim that a low excretion of phenolsulphonephthalein is usually accompanied by an elevated blood urea.

In this group are found a number of cases of so-called essential hypertension in which the blood urea nitrogen is well within normal limits and the phthalein output is distinctly good (50% or greater), but in which the blood pressure is elevated. There are 24 such cases showing a blood pressure of 160 mm. or over, 16 with a pressure of 170 or over and 9 showing a systolic reading of over 190 mm.

A number of routine urine examinations were made and albumin demonstrated in 23 cases (23%). There were four cases of glycosuria and several more of hyperglycemia (not reported upon). Two instances of hematuria were discovered. No special attempt was made to find casts, but in a routine sediment examination casts were found in small numbers in over one-half of the urines, a customary finding.

Reviewing these findings, it does not seem evident that an elevated blood pressure, either systolic or diastolic, allows of a prediction that the kidney function is depressed, although in this series of cases a considerable number do show evidences of such a depression in function, judging from the blood urea, phenolsulphonephthalein elimination and urine analysis. No little emphasis has been laid upon the close association of a nephritic process with an elevated diastolic blood pressure especially, but in the cases studied here no claim to such a relationship can be made. This refers to both the blood urea and the dye elimination. It must be borne in mind that many cases do not show an elevated blood pressure, but have elevated blood urea and a corresponding depression of dye excretion.

Probably there are few data in this series bearing on the causal relationship of renal insufficiency and high blood pressure, and such a discussion is beyond the scope of the paper. The opinion that hypertension results from impaired renal excretion raises the question whether or not the reverse may not frequently be true, that the impaired kidney function results from the hypertension with its concomitant vascular and perivascular changes, which tend to impair the nutrition and function of the kidney parenchyma. That the two phenomena are closely related needs no emphasis, and the finding of hypertension, while not necessarily signifying a nephritis so far as the more casual examinations indicate, may denote that chronic nephritis will supervene.

In passing, it will be noted that 13 of these patients have died. The usual causes of death in such patients are associated with the cardiovascular-renal disease or acute infections. Of these patients, three died of chronic myocarditis, three of cerebral hemorrhage, three of pneumonia, one of general peritonitis, one of cancer of the bladder, one of pulmonary tuberculosis, and one of general paralysis of the insane. As yet the microscopic examination of the renal tissues has not been done.

SUMMARY.

A study of the blood urea nitrogen, elimination of phenolsulphonephthalein and urine analysis was made on 100 cases of elevated blood pressure, using the figure of 150-155 mm. systolic pressure as the low value for selection. With but four or five exceptions, the patients were in apparently good physical condition and active, none showed any edema, dyspnea, fever or other compromising conditions.

In this group of patients, therefore, it may be said that 70% showed blood urea nitrogen values below 16.0 mgm. per 100 cc. (whether considering the whole group or only those showing a systolic value of over 170 mm. or a diastolic figure of over 100 mm.), and 66% showed a dye excretion of 40% or higher; 16% showed a value of 40%. A slightly lower percentage was found in those patients showing a higher blood pressure (systolic of 170 mm. or over, diastolic of 100 mm. or over). Twenty-eight per cent. showed both a urea nitrogen of 16.0 mgm. or over and a dye excretion of 40% or less. Ninety per cent. of the cases showing a urea nitrogen of 16.0 mgm. or over had a dye excretion of 40% or less. Twenty-four of the cases showed a blood pressure over 160 mm., a urea nitrogen below 15.0 mgm. and a phthalein over 50%. The presence of albuminuria and cylindruria in the type of case studied here does not allow a prediction that the renal efficiency is impaired, if we choose to judge the efficiency by the features to which reference has been made.

No.	Age	Blood Pressure	Blood Urea Nitrogen	Urine					Renal Function
				Spec. Grav.	Alb.	Sug.	Blood	Sediment	
1*	58	170-70	..	1018	Tr.	0	Pos.	R. B. C. hyal. casts. Pus	30%
2*	50	192-90	16.2	1026	S.T.	Pos.	Pos.	Occ. R. B. C. pus-hyal. casts	25%
3	64	175-100	19.6	1012	0	0	0	Rare hyal. casts	30%
4	57	165-95	15.4	1020	0	0	0	Few hyal. casts	40%
5	55	160-90	..	1020-28	V.S.T.	0	0	Few gran casts	30%
6	67	160-95	18.5 19.9	1030	V.S.T.	0	0	Many hyal. casts	35%
7	48	170-120	15.4	1020-28	0	0	0	Rare hyal. casts	40%
8	65	175-90	16.2	1010	S.P.T.	0	0	Occ. hyal casts	40%
9	54	150-90	15.4 15.9	1022	S.P.T.	0	0	No casts	40%
10	65	180-100	16.2	1012	S.P.T.	0	0	Occ. hyal. casts	Uncoop.
11	71	210-120	14.3 16.5	1016-30	0	0	0	Occ. gran., rare hyal. casts	Uncoop.
12	50	160-80	11.7	1022	0	0	0	Rare gran. casts	50%
13*	83	215-100	20.2	1020	0	0	0	Occ. hyal. casts	25%
14	77	170-95 210-90	17.9† 15.7	1020-22	0	0	0	Occ. hyal. casts	70%§ 55%‡ 35%†
15	71	200-120	12.9 11.7 13.4	1020	0	0	0	Rare hyal. casts	50%
16	74	220-105 160-95	9.2 8.4	1018	0	0	0	Rare hyal. casts	50%
17*	70	240-115	34.8‡	1010-18	S.T.	0	0	Occ. gran.	45%§
18	47	175-95	11.2	1015	0	0	0	No casts	35%
19	75	180-100	12.3	1011-20	0	0	0	Rare hyal. casts	Disch.
20	48	160-105	15.4	1020-28	0	0	0	No. casts	40%
21*	58	200-110	17.1 17.9	1012	0	0	0	Occ. gran. casts	15%
22	63	190-95	15.7	1022-30	S.T.	Pos.	0	Few hyal. casts	5% 5%
23	56	190-110	14.0	1014	0	Pos.	0	No casts	40%
24	58	170-100	11.8	1020	0	0	0	No casts	30%
25	55	165-90	15.7 11.5	1018	0	0	0	No casts	45%
26	60	175-105	20.2 21.3	1018-22	0	0	0	No casts	20%
27	57	195-120 216-124 170-80	15.4 15.7 12.0	1008-30	0	0	0	Rare hyal casts	60%
28	63	195-120	..	1010	0	0	0	Occ. gran casts	20%
29	45	155-95	11.5	1015	S.P.T.	0	0	No casts	50%
30	50	170-95	15.4	1028	0	0	0	No casts	40%
31	77	180-90 210-85	9.2 13.4 15.1	1014	0	0	0	No casts	55%
32	88	200-140 180-115	16.8 16.8	1008-22	0	0	0	Occ. gran. and hyal. casts Hyal. casts	35%
33	70	160-100	16.5	1006-12	0	0	0	Gran. casts	30%
34	78	152-80	11.2 12.3	1014-22	0	0	0	Hyal. and gran. casts	Uncoop.
35*	65	190-110	16.3	1021	V.S.T.	0	0	Hyal. and gran. casts	
36	65	200-95	12.8	1012	0	0	0	Few hyal. casts	40%
37	51	160-120	9.2	1015	V.S.T.	0	0	No casts	55%
38	61	180-110	14.3	1020	0	0	0	No casts	50%
39	73	182-120	10.6 13.4	1022	0	0	0	Rare hyal. casts	35%
40	66	160-120	13.4	1002-24	0	0	0	No casts	30%
41	77	180-90	12.1 11.8	1024	0	0	0	No casts	45%
42	60	210-110 180-100	9.5 12.3	1012	0	0	0	No casts	50%
43	39	155-85	10.6	1025	0	0	0	Few gran. casts	65%
44	70	170-90 180-95	22.4† 15.4 19.9	1012-24	S.P.T.	0	0	Hyal. and gran. casts	50%‡ 35%†
45	72	160-90	20.2 18.2	1020	S.T.	0	0	Gran. casts	15%
46	71	155-90	13.4	1014	S.P.T.	0	0	Occ. hyal. casts	Uncoop.
47	68	210-155	12.3	1010	0	0	0	Occ. hyal. casts	55%
48	67	160-100	17.4	1012-30	0	0	0	Occ. hyal. casts	30% 40%

*Died †1918 ‡1917 §1916

No.	Age	Blood Pressure	Blood Urea Nitrogen	Urine					Renal Function
				Spec. Grav.	Alb.	Sug.	Blood	Sediment	
49	54	175-120	9.5 14.0	1012-18	0	0	0	No casts	50%
50	65	160-100	23.2 18.7 20.7	1018-30	0	0	0	Few gran. casts	55%
51	57	160-95	12.0	1015	0	0	0	No casts	40%
52	45	155-85	17.4	1025	S.P.T.	0	0	Occ. hyal. casts	10% 5%
53	55	165-110	21.3	1012-20	S.P.T.	0	0	Occ. hyal. casts and gran. casts	10%
54	68	160-95	15.9 15.4	1016	0	0	0	No casts	50%
55	71	155-90	21.8 19.0 17.4	1020	0	0	0	Many hyal. casts Gran. casts	60%
56	70	170-85	11.7 12.3	1004-20	0	0	0	Hyal. and gran. casts	50%
57	37	160-110	12.9	1028	0	0	0	No casts	45%
58*	79	170-110 150-80	10.1 11.2 15.1	1025	S.T.	0	0	Few gran. casts	25+% Incontinent
59*	70	230-100	21.8 16.9	1018	0	0	0	No casts	30%
60	78	180-95 210-80	14.0 10.1	1022	Tr.	0	0	Few gran. casts	30%
61	87	165-60	23.3 29.9	1020	0	0	0	Pus. No casts	15%
62	71	170-90	17.4‡	1010	0	0	0	Rare hyal. casts	35%§ 55%‡
63	65	170-100	13.4 13.7	1019-22	0	0	0	No casts	50%
64	44	175-120 210-105	10.1 12.3	1014	0	Pos.	0	Rare hyal. casts	0% ?
65	59	180-116	13.4	10.13	0	0	0	No casts	40%
66	52	155-90	..	1021	0	0	0	No casts	5% ?
67	79	155-85	18.5	1025	0	0	0	Few gran. casts	40%
68	74	180-100 170-95	9.5 14.0 13.7 14.6	1020	0	0	0	Occ. hyal. casts	70%‡ 50%†
69	58	210-130	..	1002-14	0	0	0	Occ. hyal. casts	15%
70	57	170-95	6.7	1018-25	0	0	0	No casts	Uncoop.
71	48	165-95	14.0	1020-28	0	0	0	No casts	55%
72	32	160-90	9.0 12.9	1020-30	0	0	0	No casts	50%
73	57	220-140	11.8	1010	0	0	0	Occ. hyal. casts	10%
74	47	150-85	11.2 11.8	1010-26	0	0	0	No casts	55%
75	65	195-110	14.0	1012-19	0	0	0	No casts	30%
76	53	190-105 205-95	10.1 12.3	1028	0	0	0	No casts	50%
77	87	240-90 180-95	9.2 10.1 8.7	1016-18	0	0	0	Few gran. casts	65%
78	44	155-90	12.6	1010-26	0	0	0	No casts	50%
79*	60	180-90	12.3	1008-20	S.T.	0	0	Occ. gran. casts	..
80	59	165-100	10.6	1010-26	0	0	0	No casts	50%
81	75	200-110 160-110	15.4 13.2	1004-28	0	0	0	Rare hyal. casts	60%
82	47	150-95	9.2	1017-26	0	0	0	No casts	55%
83	48	180-110	11.2	1010-25	0	0	0	No casts	15% ?
84	66	225-130	12.3	1032	0	0	0	Rare hyal. casts	Uncoop.
85	43	165-100	14.6 14.0	1020	0	0	0	No casts	50%
86	63	155-100	..	1018	V.S.T.	0	0	No casts	70%
87	63	220-90 160-95	12.3 12.9	1022-24	0	0	0	No casts	50%
88	50	170-110	10.6 11.8	1025	0	0	0	No casts	55%
89	61	160-80	14.0	1020-24	0	0	0	No casts	15%
90*	73	160-95	7.3	1020	Tr.	0	0	Hyal. and gran. casts	..
91	45	160-95 190-110	15.1 15.1	1018	0	0	0	No casts	50%
92	38	170-110	19.6 18.5	1016	0	0	0	Rare gran. casts	25%
93*	42	175-100	8.4	1026	0	0	0	No casts	..

*Died †1918 ‡1917 §1916

No.	Age	Blood Pressure	Blood Urea Nitrogen	Urine					Renal Function
				Spec. Grav.	Alb.	Sug.	Blood	Sediment	
94*	81	190-90 240-30	15.1 15.4 20.3	1018-20	S.T.	0	0	Occ. hyal. and gran. casts	Uncoop.
95*	75	150-95	23.0 23.5	1012-20	0	0	0	Gran. casts	30%
96	76	170-80	17.6 17.6	1035	0	0	0	Few gran. casts	40%
97	70	270-130	14.6	1024	0	0	0	No casts	40%
98	28	250-105	15.1 17.9	1012	0	0	0	No casts	40%
99	48	180-120	14.0	1016	0	0	0	Occ. hyal. casts	45%
100	76	150-95	11.2 15.9	1020-30	0	0	0	Gran. and hyal. casts	60%

*Died †1918 ‡1917 §1916

Number of patients studied	100
Range of ages	28 to 88 years
Number over 50 years of age	80
Incidence of elevated pressure in hospital	about 20%
Blood urea nitrogen determined on	94
Upper normal value considered	15.0-16.0 mgm.
Over 15.0 mgm.—100 cc. blood	37 (39%)
Over 16.0 mgm.	29 (31%)
Blood urea nitrogen:	
(*a*) Systolic value of 170 mm. or over	62
Blood urea nitrogen determined	59
15.0 mgm. or less per 100 cc. blood	36 (58%)
Over 15.0 mgm.	23 (42%)
16.0 mgm. or less	41 (70%)
Over 16.0 mgm.	18 (30%)
(*b*) Diastolic value of 100 mm. or over	53
Blood urea nitrogen determined	50
15.0 mgm. or less per 100 mgm. blood	30 (60%)
Over 15.0 mgm.	20 (40%)
16.0 mgm. or less	36 (72%)
Over 16.0 mgm	14 (28%)
Excretion of phenolsulphonephthalein	
Number determined	89
Value below 40%	30 (34%)
Value of 40%	15 (16%)
Systolic pressure of 170 mm. or over	
(Cases done)	51
Below 40%	19 (37%)
40% or below	28 (55%)
Diastolic value of 100 mm. or over	
(Cases done)	44
Below 40%	17 (37%)
40% or below	24 (55%)
Number with urea nitrogen of 16.0+ mgm. on whom phthalein was done	29
Elimination of 40% or less	26 (90%)
Number with urea figure 15.0-16.0 mgm.	8
Elimination in same of 40-50%	6 (75%)
Both urea and dye excretion done	82
Urea of 16.0 mgm. or over and dye of 40% or less	23 (28%)
Urea of 15.0 mgm. or over, dye of 40% or less	29 (35%)
Number of cases of "essential or vascular hypertension" (urea below 15.0 mgm., dye over 50%)	24

Urine analysis (routine examination)	
Albuminuria	23
Glycosuria	4
Hematuria	2
Cylindruria	53
Deaths since study	13
Causes associated with cardiovascular system or acute infections	10

There have been thirteen deaths in this group with eleven autopsies. The causes of death in ten of the thirteen cases were associated with either the cardiovascular system or acute infections.

NOTES ON CASES.

1. Had hematuria, cancer of bladder.
3. Patient in bed, aphasic, confused.
17. Blood urea nitrogen determination 5 days before death.
22. Phthalein done 6 months apart. Patient still about, despite low figures.
52. Phthalein done 5 months apart.
89. Patient in wheel chair,—a case of general paresis.
93. Patient in bed,—case of tabo-paresis.

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Hospital Railroad Car is Needed in Boston.—A hospital railroad car, fitted up with every convenience for carrying wounded and sick soldiers from disembarkation points, is very much needed in Boston, according to a statement made by Major Arthur E. Austin, medical director of the Department of the Northeast. Pullman cars have been used for some time for this purpose, but they have been found inadequate, because stretchers cannot be taken into them.

Selected Papers.

THE "INSTINCT-DISTORTION," OR "WAR NEUROSIS."*

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IN a paper published some little time ago[1] it was pointed out that functional nervous disorders could be divided into two groups, according as to whether they were or were not determined by environment. Hysteria, and the neurosis about to be considered, belong to the former of these two groups, both being influenced by environment, while neurasthenia or the functional nerve disorder brought about by exposure of the nerve cells to prolonged poisoning by micro-organismal products, and certain of the reflex neuroses, belong to the latter.

The group of cases now to be considered resembles the hysterias in that environment plays a dominant part in their formation, but they differ from them in two respects: (1) in hysteria the rôle of environment is indirect, whereas in these cases it is direct; (2) hysterical phenomena are based on a physiological reaction, while the group under consideration is not so based; the phenomena are pathological and subserve no useful function in the shielding of the conscious mind from unpleasantness. For all practical purposes it is a product of modern warfare; it occurs in people correctly adapted for the requirements of civilized life when such people have been, for a length of time that varies with the individual, made to live in the utterly abnormal environment produced by the war. A functional breakdown of the kind to be described is liable to happen to everyone under these conditions, the variable element being the length of time that elapses before the symptoms become manifest.

THE PRIMARY INSTINCTS.

Our normal behaviour under conditions of civilized life is to a great extent the result of the development, inhibition, and combinations of the primary instincts among each other. McDougall describes seven such instincts:

The instinct to run away under the emotion of fear.
The instinct to fight under the emotion of anger.
The instinct of repulsion under the emotion of disgust.
The instinct of curiosity under the emotion of wonder.
The instinct of self-abasement under the emotion of subjection.
The instinct of self-assertion under the emotion of elation.
and The Parental Instinct under the emotion of tenderness.

These instincts should not be looked upon as hard-and-fast and rigidly defined from each other. Nor can we imagine that in an ideally primitive organism such instincts exist in a state of elemental purity; it is almost certain that they have evolved from a functionally undifferentiated nervous system, and that their development has been determined by environment. Generally speaking, the environment in which animal and vegetable life has developed through the ages has been the same for all forms—an environment of ceaseless stress and strain, of unending activity and competition; therefore all animal life met with on this planet manifests the presence of some or all of these instincts, their combinations and associations. But they are essentially labile, and their relative strengths depend on the minor differences in the conditions of life brought to bear upon any genus or species. But in that these instincts have developed from some undifferentiated form of nerve activity, the reactions manifested when for any cause the normal play of emotion and conation is disturbed need not be distinct and specific for each instinct involved. As a matter of fact, there is, I think, a tendency for certain of these instincts to show their "resentment" under such circumstances in a characteristic manner; but this is no more than a tendency, and need not necessarily obtain.

Now, if we consider the above seven primary instincts, we see that in that their relative strengths are the result of our customary environment, and are, in such strengths, useful for our customary environment; then, given a sudden and sufficiently radical alteration in our surroundings, the developed instincts in their relative powers may be utterly inefficient for the fresh environment. Modern civilization tends to the safety of the individual without any very great trouble on his part, and the emotions of fear, anger, and repulsion are not, in such a state, called very frequently into action—at any rate, with any great intensity of tone. Much of the nerve force associated

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with these emotions is transferred to other conative activities, with results that are useful to the individual as long as he is living under the conditions of civilized life to which he is accustomed.

THE EMOTIONS IN WARFARE.

But under the conditions of modern warfare the emotions of fear and disgust particularly are called into frequent and violent activity. And not only is there a sudden and intense evocation of unaccustomed emotions, but the end-results and conative aspects of such emotions, so far from being given free play, are expressly forbidden, both by the idealistic conceptions acquired during childhood and early life and by vigorous punishment from fellow-men. Thus in modern warfare men are daily put into positions of imminent danger; the danger to life under certain conditions of military duty may be so great as to render death a practical certainty. In such situations men, if they are normally constituted, experience fear, and, under ideal conditions of such a position, would run away. As it is, self-respect and military discipline prevent this normal end-result, and such men proceed to fight in direct disobedience to their instinct. The helpful influence of the emotion of savage anger against their adversaries is not felt with any intensity. The disgust at the unaccustomed sights and sounds of conflict is not allowed to manifest itself in the normal way by repulsion, so that under these conditions three of the most powerful instinctive activities are distorted.

How utterly abnormal from the biological standpoint such a situation is may be inferred if we take analogous cases in the lower animal world and imagine a rabbit confronted by a hungry fox. If we further imagine the rabbit to be an idealist he might be tempted, for abstract reasons, to fight the fox, and the result would be obvious, and from the point of view of natural selection, wise. Such a situation between two such animals is inconceivable, but if in place of abstract reasons the rabbit was fighting in defence of its young, then, whatever the result, the incident would be natural and the animal would probably fight more efficiently.

If we consider the above seven primary instincts we see that they are divisible into two groups, members of each reinforcing each other and antagonizing those of the other group. Into one of these groups fall the emotions of fear, disgust, and self-abasement, with their associated impulses; into the other anger, self-assertion, wonder, and tenderness felt for offspring. A sense of inferiority combined with disgust reinforces the feeling of fear and renders the impulse to fly more powerful; whereas fear may be diminished by anger, a sense of superiority, and especially by the activity of the tender emotion. Unfortunately the tendency of modern warfare is to give play to the emotions of the first group without developing those of the second, and also to produce emotional tone without allowing the associated impulses to come into action. The elaborate inculcation of a hatred for the enemy and of a conviction that he is fighting in defence of his hearth and home are undoubtedly useful in lessening the destructive emotions of the first group in the case of the fighting man.

In that the occurrence of any emotion should normally be followed by the actual occurrence of its associated impulse, suppression of the appropriate conative aspect is directly harmful to the proper functioning of the nervous system, and is liable to be followed by functional disorders of this system.

In the case of the production of hysterical symptoms as opposed to those of the functional disorder we are now considering, it was stated that the etiological value of the exploding shell and of the collapsing trench lay in the fact that they reinduced an emotional tone which had been at one time in the life of the patient associated with some particular incident that he had seen, or heard, or experienced. In the type of functional disorder that we are dealing with now, the exploding shell and the falling trench also are important etiological factors, but they bring about their effects in a different way; they act as the "last straw on the camel's back," and simply complete the degree of fear that is necessary to make the symptoms obtrusive. In the former case these factors act as the triggers of a specially adjusted mechanism; in the latter as the final blows in the disrupting of the normal mental mechanism.

SYMPTOMATOLOGY.

The symptomatology of the "war neurosis" differs from that of the hysterias in that it conforms to one type. In hysterical conditions of the pure or protective form there is found a cutting away from the consciousness of the patient all impulses coming from a region of the body which has been concerned in the transmission of unpleasant impressions; in the suggestion hysterias the diversity of symptoms and symptom groups is only limited by the limitations of the particular patient's powers of association, but in the war neurosis the diversity of symptoms is reduced; they conform to the various motor manifestations of fright, and are divisible into two groups.

In the first of these the fright manifestations are those associated with flight: pallor of the face with a rapidly beating heart and staring eyes, sometimes to the extent of exophthalmos; dilatation of the pupils and muscular excitability, spasm or tremor. Such symptoms in their essence are physiologically useful in that they put the animal into a state of preparedness for the obtaining of a desired objective—immediate removal from a given neighborhood—and this is the group that is most often met with in this form of functional nerve disorder, some or all of them. When all are present the impression on an observer of utter fright is irresistible, but in actual practice all of them are not present in the majority of cases, and then the rôle of the suppressed emotion may escape attention.

In the second group the fright manifestations are those associated with the "crouching" instinct met with in certain of the lower animals, a process which keeps such animals perfectly stationary in situations of intense and imminent danger so as to avoid attracting the attention of an enemy. Here, in addition to the tachycardia, sweating, and dilatation of the pupils, there are inability to walk, or even to move the legs at all for this purpose; occasional attacks in which the patient for a short time cannot voluntarily move any part of his body; and inability to make a noise, aphonia, whispering speech, or its modification, stammering.

THE ELEMENT OF FEAR.

These somatic signs are indicative of a "choked up" conative aspect at, and leading up to, the time of their occurrence. Now, although it is true that normally the conative aspect of an instinct follows after the emotional, nevertheless it is a fact that the performance of appropriate actions tends to the production of the associated emotion. Thus, bracing the trunk muscles, clenching the hands, and setting the teeth will induce a feeling of anger; and it is to be expected that the presence of the symptoms mentioned above would reproduce the emotion of fear. This is always the case, and it is the presence of this emotion that is the deciding factor in the diagnosis of the war neurosis. These patients always at one time or another experience fear.

In the early, untreated, and acute cases the fear may be obvious and openly expressed; in addition to looking terrified, the patient is terrified, and he is terrified waking and asleep. As he improves the fear leaves him in his waking hours and is confined to his dreams, and the importance of a history of terror-dreams can hardly be overrated.

Much has been written lately on the subject of dreams and dream interpretation, and much of what has been written seems to me to be of the nature of a very elaborate structure built on very slight foundations. We do not know enough of the psychology of thought to justify detailed interpretation of dream incidents, but the emotion that is evoked by these incidents not only illuminates the general trend of the dream, but also gives important information as to what particular emotion has been excited and, if not actually suppressed, not been allowed free play during the waking hours.

The progress of a patient suffering from the war neurosis is best estimated by the intensity of the terror-dreams. In the earliest phase, when fear is felt during the waking hours, there may be a difficulty in getting to sleep at all on this account. Later, when he does sleep his rest is fragmentary, and is broken by the distress caused by his dreams. The fear-content of the dreams is so intense that it wakes him with a jerk, often with a cry; he lies for a time unable to move and sweating freely. He then drops off to sleep again, and the same behaviour is repeated throughout the night.

This phase gives way to one in which the patient on waking in the morning remembers with considerable distress the dreams that he has had, terrifying in themselves, but not sufficiently intense to wake him up. Or if he does wake up in this stage there is no free sweating.

In the third stage towards recovery the

dreams do not come every night; several nights of refreshing sleep are obtained, and only now and again does he experience the dreams; in this stage he is not awakened at all by them. It is instructive, however, to notice that in this stage, if he is touched while asleep, he wakes with a start and in distress. If in the course of treatment the patient relapses, the dreams revert to the early types, but not, in the majority of cases, with sufficient intensity to wake him.

As these patients improve, the element of fear disappears from their waking life and in the course of time from their dreams. But in the vast majority of cases the somatic symptoms—tremor, stammering, and so forth—remain, and in such cases the final phase of the disorder has been entered, the stage of habit. The habit stage is of importance, for not only is it the stage of greatest duration, but it tends to perpetuate the condition by bringing about relapses. If while under treatment anything occurs to upset a patient's confidence in the methods of treatment he is receiving, if the conviction that he is going to recover is weakened from any cause, then his mind becomes, so to speak, sensitive to his symptoms, and in that these are the result of fear they work backwards and reproduce the emotion, as mentioned above; but the emotional intensity is rarely as intense as in the earliest phases of the condition.

These two stages of war neurosis, the emotional and the habitual, are characteristic, and their differentiation is important from the point of view of complete recovery. A patient in the first stage is ill and requires hospital treatment, whereas one in the second stage is merely inconvenienced, and very often hospital treatment is the direct opponent to complete recovery.

ANOTHER TYPE OF CASE.

In Mesopotamia and in India during the first half of 1916 quite another type, from the point of view of symptoms, of functional nervous derangement was met with. This form was characterized by evident mental dullness as far as events happening round the patient were concerned. Such patients would answer questions correctly but briefly; they took no interest in any subject under discussion and never volunteered any remarks; they were perfectly content to lie quietly and passively; they neither read nor wrote. When given any information bearing upon their interests they either took no notice at all or dismissed the subject with some indifferent remark. Their mental state was one of inertia; there were no positive signs, and to anyone who did not know anything of the antecedents of a particular patient he would seem just rather a surly and uninterested person. Yet in the course of their convalescence they proved themselves rather the reverse.

Such patients were those who had been in Mesopotamia some time, and who had experienced the distressing monotony that a prolonged residence in that country impresses upon most people. In the early days of the campaign, everything there was characterised by this deadness—country, climate, occupation, and food. I cannot help thinking that the condition of intellectual inertia produced is the result of this utter absence of interest—is, in fact, the result of an abeyance of the emotion of wonder in the instinct of curiosity. Patients in this condition recovered quickly when sent away from the country, recovery in many cases being associated with a period of irritability.

THE SEX INSTINCT.

In view of the mass of literature, constructive and destructive, that has been published during recent years on the part played by the sex instinct in the production of functional nervous derangements, it may be advisable to discuss briefly its potency or otherwise as such a factor in the light of the evidence gained from the multitude of functional disorders that have been recently observed.

In that sexual activity is an instinct with emotional, receptive, and conative aspects, it may reasonably be supposed to be a possible source of an instinct-distortion neurosis, and in my opinion it is such a source in a limited number of cases. Its *modus operandi* is strictly analogous to that of the flight and repulsion instinct; that is, it produces a neurosis when there is an intense emotional activity with obstructed conative activity. In other words, it is not excessive sexuality nor perverted sexuality that produces the neurosis; it is compulsory abstinence from sexual activity. Given that a man with strong sexual tendencies be forced to live in an environment where he is unable to gratify them, however healthy they may be, then such a man may in the course of time manifest an instinct-distortion neurosis. I do not think that there is any need to postulate the existence of "repressed complexes" or other subtleties; a man in this position may masturbate or fall into homosexual practices, or, what is still more important, he may fear the possibility of such a happening. The end result is the same; he worries himself ceaselessly over his condition and ultimately develops mental depression. Such men frequently tend to struggle against this depression and to overcompensate in the direction of high spirits, and their neurosis takes this form—cheerfulness and high spirits with periods of intense depression—and such patients require careful watching, for they not infrequently resort to suicide.

Of course, in the case of men and women of an hysterical type the primary incident may be of a sexual nature, but this is not in any way essential, nor is it, in my opinion, at all frequent, at any rate in this country. The sex neurosis works through the medium of worry, and it is difficult, I think, for some of us to realize how intense this worry may be. Such cases may be suitably called "isolation" neuroses, for it seems probable that in addition to enforced sexual abstinence the factor of loneliness plays a part.

The sex instinct is most emphatically not of primary importance in the production of the war neurosis.

CAUSATION.

It will thus be seen that the war neurosis as described above differs entirely in its mode of origin from hysteria. The latter condition clinically is the result of an improper suppression of a tendency that is inherent in every one of us and which is determined by our position in the scale of evolution; it is manifested as a result of an emotional activity which is normal as far as the emotion is concerned. The former is the result of an improper strain on the emotions themselves, leading to a wrongful emotional tone and to distortion of the bodily mechanism which is associated with the conative aspect proper to the emotion concerned. To use an analogy, there is all the difference between the two conditions that there is between the emptying of a reservoir by raising the sluices in the dam and by smashing the sluices or the dam itself.

The actual method by means of which emotional activity becomes manifest as somatic phenomena is an interesting problem that does not concern us here; the work of Cannon and others indicates the sympathetic nervous system and certain of the ductless glands as important connecting links. It is important, I think, to exclude from the pathology of "shell shock" (which is a term generically applied to certain hysterical and instinct-distortion phenomena, and which is about as applicable to either as "cold" or "chill" would be to all varieties of inflammation of the lungs) any lesion which gives rise to organic clinical signs. Cases in which, after death, hemorrhages and compression lesions are found are better called "shell disease," after the principle that distinguishes caisson disease. The different functional disorders included at present under the name of shell shock should be sharply separated from those in which organic lesions can be diagnosed during life.

In this way, then, a shell exploding so close to a man that the violent alterations in the air-pressure brings about cerebrospinal hemorrhages and other disruptive effects would produce "shell disease," whereas the explosion that completes the measure of emotional stress in the manner described above, and which brings into eminence a condition that has long been incubating, produces "shell shock," so-called. In the presence of signs of organic disease shell shock should not be diagnosed, but shell disease. Of course, there are bound to be cases in which the diagnosis between the two conditions is of extreme difficulty, but from the point of view of both prognosis and treatment it is well to go on the principle of diagnosing shell shock only when a thorough examination reveals no signs of organic disease, and shell disease when such signs are present.

DIAGNOSIS.

The diagnosis of the instinct-distortion, or war neurosis, is, as a rule, easy. In the absence of signs of organic disease it may be made in the case of any patient who shows symptoms of nerve irritability and in whom, at one time or another, the element of fear is present. In the event of such symptoms existing in a patient who shows no signs of fear, either in his waking hours or in his dreams, one of two conditions may be present—the war neurosis in the late or habit stage, in which there will be a history of terror-dreams at the beginning of the illness; or a suggestion-hysteria, in which case no such history is obtainable. Naturally, leading questions should not be asked; the patient should merely be asked if he sleeps well, or if he slept well at the time of onset of the breakdown.

It sometimes happens, though not in my experience very commonly, that an instinct-distortion neurosis and a pure hysteria exist in the same patient.*

I recently saw a young soldier, a private, who was under treatment for herpes zoster. The condition affected the left side of the chest in the area of the fourth dorsal segment. While under treatment he quite casually mentioned that he had been recently suffering from what he called "attacks," after he had been in bed for a little time and when he was going off to sleep. In these attacks, which lasted only for a minute or so, he lost his sight, and all power of making a noise; he was absolutely unable to move a limb; he came to himself sweating, and, as he described it, "sick with fright."

The emotional tone of the incident, the inability to move or to make a sound were quite characteristic of the instinct-distortion neurosis, the symptoms conforming to those of the second group mentioned above, but the temporary blindness was difficult to account for on the grounds of an instinct-distortion neurosis.

Looking through some past notes of the case, however, the following entry was found: "The patient states that what worried him most when in Flanders were the horrible sights, to which, unlike most of his companions, he could never get accustomed." The amaurosis, in fact, was the result of a pure or protective hysteria, and the condition of the patient was due to the existence of the two types of functional nerve disorder.

The actual determining cause of the attacks was the sensation of his heart beating as he became drowsy; the trouble did not arise until he began trying to lie on the left, or herpetic side. The condition of the nervous system was quite slight and readily passed away; he had not been invalided for it; but in the event of his not having had herpes zoster when he did, it would be a matter of interest as to which functional derangement, the hysterical or the instinct neurosis, would have become obtrusive first. Probably the hysterical, in which case he would have been invalided for blindness.

The above case is of interest in that it indicates the lines along which an approach to the diagnosis should be made. Any particular symptom should be investigated from the standpoint of its being or not being, as the case may be, useful to the individual as a means of escape from his enemies, or of its being a derivative of such a useful manifestation. Thus, inability to move or to make a noise is obviously useful to the hare when trying to avoid attracting attention, but blindness is not, for it would militate against the final rush when the animal realized that attention had been attracted; it would prevent this realization to a great extent. Therefore the blindness could not form part of the instinct-distortion neurosis, and further examination into the attitude of the mind of the individual to his surroundings in the fighting line will ultimately bring into prominence some association with sight—either, as in the case just mentioned, distressing sights, or, if these are not complained about, some childish association in which the eyes played a part.

TREATMENT.

The treatment of the instinct-distortion neurosis is, in its essence, simpler than that of the hysterias, and more satisfactory. This, of course, follows from the fact that in the latter conditions symptoms are treated, while the underlying condition remains; the patient is hysterical to the end of his life. In the former, however, the harmony of the nervous system can be, and as a rule is, fairly easily restored, the difficulty experienced in practice being the persistence of certain symptoms as habits, and even these are more readily removed than would at first sight appear probable. In the course of time, when all ideas of the war as an imminent factor have disappeared, the more troublesome of these symptoms will be done away with owing to their very obtrusiveness, while the less troublesome will persist only as long as they do not interfere with the patient as a useful individual in the surroundings in which he works.

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* As a general rule, in a hysterical individual the hysteria symptoms manifest themselves before the emotion neuroses have had time to develop; this is, of course, intelligible on the theory that the hysterical person develops his condition to protect his consciousness from emotional distress. The instinct-distortion neurosis may be colored by a suggestion hysteria, but in such a case the greater includes the less, and the case should be looked upon as an instinct-distortion neurosis.

Treatment falls necessarily into two groups according as to whether the patient is or is not ill. These two groups correspond fairly accurately to the phases mentioned above, the active or terror phase of the illness and the habit phase.

There are two fundamentally important principles in treatment that should always be kept in mind. The first is that the patient must be removed as quickly as possible from the environment which was responsible for the condition—he ought to be taken right away from any focus of fighting; and the second is that from the very beginning he ought to have it impressed upon him that he is going to get completely cured. The removal from the combatant atmosphere is so obvious and so usual that its importance as a method of treatment as well as the light it throws on the origin of the condition is in danger of being overlooked.

When such a patient has arrived at the "ultimate base" wherein the remainder of his treatment is to be effected, if he is still in the active stage he should be kept for the most part in bed and in a ward that is quiet. It is inadvisable that he should be alone; I think that a ward with two other patients in it forms the best environment. Here he should stay until he is able to sleep without being waked up frequently by his dreams. In the early stages, when he is unable to sleep at all, I have found the best results with trional, 10 gr., with or without aspirin, and diminished gradually as the tendency to sleep improves. During this period it is well to make him realize that he has power over his legs by making him take a few steps every day in the ward, but as long as he is definitely "ill" with his condition he ought to spend most of his time in bed. He should be seen frequently by the medical officer in charge and should be constantly reassured as to his complete curability and encouraged to look upon himself as improving from day to day.

As the sleep improves and the dreams lessen in intensity he should be made to leave the ward for a short time each day and mix with the other patients, and then the more detailed treatment may be instituted. It will be found that patients manifest one, some, or all of the following disabilities; speech defects, tremors, disorders of gait, mental depression, irritability of the sympathetic nervous system.

As regards *speech defects*, the principle of treatment may be summed up in the words, "careful and painstaking reëducation." At the Seymour Park Military Hospital in Manchester we have been fortunate enough to obtain the assistance of the officials of the Institute for the Deaf and Dumb in the treatment of cases of disordered speech, and the results have convinced me that these patients are the most readily curable of all. Definite classes are formed, and the men are shown the position of the lips in the articulation of the vowels and their compounds. They are taught breathing exercises, are made to read aloud, and are discouraged from speaking to fellow-patients while they stammer. The result in the majority of cases is little short of marvellous, but, as in all cases of the instinct-distortion neurosis, treatment must be painstaking and to a large extent individual, and a very considerable degree of patience is required.

Similarly, in the treatment of *disorders of gait*. In the event of there being complete inability to move the legs at all, the patient should be made to sit on the edge of the bed and "feel the floor with his feet." Often enough this produces clonic spasms of the legs and the patient at first can practice only for short periods at a time, but if he is made to practise regularly and is systematically encouraged these spasms lessen, and he then begins to apply pressure to the floor with the feet. He should then be supported and made to stand, and to take a step or two; in the course of a very short time with support he will be able to get over the ground easily. The support should then be lessened, and it is well to remember that it is very much more easy to err by keeping the support, orderly, crutches, or stick, too long than not long enough. As soon as the patient can move fairly well when supported by an orderly he should be given crutches, and when he realizes that he can manage these, he should be made to give them up and take to a stick. The same principle is repeated with the stick; he should discard it as soon as he is able to use it with comfort. During the orderly, crutch, and stick stages he should be made to take exercises of precision over a track marked out on the floor. Two lines are painted on the floor about three feet apart, and foot-marks are indicated between them; the patient is told to walk between the lines, putting his feet on the marks. The proper use of the thigh and leg muscles should be insisted upon. These exercises may be associated with the use of a treadle machine.

Tremors also should be treated with exercises of precision. The coarse, clonic spasms of the early stages of the condition readily subside as improvement in walking is attained—and the less the patient's attention is drawn to the hands and arms in this stage the better. In the stage of the fine tremors he should be made to use his hands and arms in the way that best appeals to his interest; he should be made to construct models with a set of child's bricks or, in the later stages, with some of the "Meccano" outfits. Or he may be encouraged to manipulate chessmen or to do crochet work. The extent of useful exercises for tremors in the later stages is very nearly endless, and it requires only a little imagination on the part of the medical officer, sister, or nurse to suit a patient's requirements and, in addition, to make the exercises interesting. At the same time, these exercises should be carefully watched; any tendency on the patient's part to look upon them as a means of getting through the day apart from any therapeutic value must be checked; also, as soon as he has become proficient at one set of such exercises he should be given another and more delicate set. And when all signs of mental disturbance have disappeared and he realizes that he can do useful work with his hands, then the sooner he is discharged from the hospital atmosphere into some form of civil employment the better.

An interesting symptom-group that occurs in certain of the patients suffering from this form of neurosis is *mental depression,* and often enough this becomes obvious only in the later stages of the disorder. Such depression may be due to the troublesome nature of the symptoms for which, primarily, a patient is undergoing treatment; in such a case it subsides as the symptoms improve and requires no special treatment. In other cases it is present in the absence of any obtrusive somatic symptoms, and then treatment should proceed along two lines—"therapeutic conversations" and employment. Therapeutic conversations should always be added to whatever form of treatment any patient with the instinct-distortion neurosis is receiving, but when there is well-marked mental depression they become of paramount importance. In such conversations, as far as possible, the "doctor and patient" atmosphere should be avoided, and in most cases in my experience psycho-analytic methods are not needed. The patient should be treated in a friendly manner, and in the course of time definitely asked what is troubling him. If sufficient tact has been used I find that there is usually very little difficulty in getting him to say what is on his mind; often enough, unfortunately, the cause of the depression is perfectly reasonable, and as far as medical treatment is concerned is not removable. And of all the causes domestic worries are the most potent. In other cases the depression is the result of disabling symptoms that are irremovable. In one case I saw profound depression was caused by gross nystagmus, apparently the result of hemorrhages round the fourth ventricle and aqueduct; the case was one of shell disease. Depression caused by obtrusive symptoms is best treated by giving the patient occupation in experimental workshops; work which is not specially interfered with by his condition is chosen for him, and he is encouraged to make himself proficient in it. The more he is made to realize that he is not utterly disabled the more the depression lessens, but in some cases we have to admit that the depression is justified.

The *tachycardia* and other signs of irritability of the sympathetic nervous system are best treated by graduated exercises. It is an unfortunate fact that patients suffering in this way are extremely difficult subjects to convince that there is no organic disease of the heart; in the mind of the average patient palpitation, praecordial pain, and giddiness are incontrovertible signs of "heart disease." Such patients are best treated in hospitals specialized for heart conditions, in which the whole atmosphere of the patient is directed towards his realization that his symptoms are in no way dangerous, and that by training they will cease to hinder his activities in after life.

NOMENCLATURE.

In conclusion, it may be permissible perhaps to discuss the nomenclature of this condition, the instinct-distortion neurosis. The usual name, shell shock, is unfortunate, because it covers cases that are hysterical as well as those that are not, but which are the results of a strained emotional activity. But shell shock covers neither of these conditions completely; the most characteristic cases of the instinct-distortion neurosis may give no history of shell shock. On the other hand, what soldier patient that has been in the front line for any time has not been in the sphere of bursting shells? The name "shell disease" is applicable, for it is the direct disruptive effect of the explosion that produces the lesions of that condition, but shell shock, as a name applied to functional nervous breakdown in soldiers, cannot be justified.

Exposure to the sights and sounds of the modern battlefield may bring on hysteria manifestations or symptoms of the instinct-distortion neurosis. This latter name is clumsy, and "war neurosis" is too general a name to be applied to this disorder.* The more specific name "terror-neurosis" is perhaps a little invidious at the present time, and I would suggest calling the condition described in the foregoing pages "dysthymia" (δυς, impeded; θυμός, emotion).

We could then sum up the state of affairs as regards the factor of the exploding shell thus: The neuroses usually met with as results of the present war are hysteria and dysthymia. Neither is exclusively the result of the war, but of the two, dysthymia is the nearer approach to a specific war neurosis. In neither *need* there be a history of a bursting shell or a collapsing trench; such a history *may* be present in both. The bursting shell and the collapsing trench have no specific value in the determination of these neuroses; they possess an adjuvant value only, and this value may be obvious or masked. Only in "shell disease," where there are demonstrable organic lesions, have these factors any specific value, and the resulting condition is not functional.

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* I have recently seen a most characteristic example of this neurosis in a woman, resulting from physical fear of being confined. The neurosis became evident shortly after marriage and became acute during pregnancy.

REFERENCES.

[1] The *Lancet*, 1918, i, 365.

Book Reviews.

Vagatonia: A Clinical Study in Vegetative Neurology. By DR. HANS EPPINGER AND DR. LEO HESS. Translated by WALTER MAX KRAUS, A.M., M.D., AND SMITH ELY JELLIFFE, M.D., Ph.D (Second Edition. Nervous and Mental Disease Monograph Series, No. 20. 8vo. pp. 93. New York: Nervous and Mental Disease Publishing Company. 1917.

This book, while not a large one, consists of a clinical study of the vegetative functions of the nervous system. While the influence upon this portion of the nervous system from the secretions of the endocrinous glands is still largely an unknown field, yet the disturbances of organ functions in various nervous diseases are so frequent and varying that a new point of view of the origin and meaning of these disturbances cannot help being stimulative. This book gives evidence of wide reading and study, and as one of the best studies in this portion of the field of neurology which has its chief bearings in the wider field of internal medicine, of which neurology is an important part, deserves careful reading by all serious students of internal medicine.

Study of Organ Inferiority and Its Psychical Compensation. By DR. ALFRED ADLER. Nervous and Mental Disease Monograph Series, No. 24. 8vo. pp. 86. New York: Nervous and Mental Disease Publishing Company. 1916.

The author has here presented a theory of the inferiority of an organ, or organs, from various causes, which he considers as due to a variety of factors,—heredity and others, which have a large influence in determining the development of a great number of organic diseases, tuberculosis and other infectious diseases, carcinoma, and disturbances of function. Then he considers the effect of compensation of this original inferiority in various ways, with especial stress upon the psychic effect, both in the direction of repression and the development of psychoneuroses, and of compensation in psychical directions. He finds in his studies in particular confirmation of Freud's theories of the origin of psychoneuroses.

While the arguments are stated broadly, and the clinical cases adduced in support of these views are given in outline only, and seem far from convincing, the book is suggestive, though it can hardly be considered as even proving much which favors the Freudian theories of the psychoneuroses.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

PROGRESS OF INFLUENZA EPIDEMIC.

THE epidemic of so-called "Spanish" influenza is still spreading in Boston and in the neighboring districts and towns. Unfortunately, pneumonia has developed in many cases and the mortality list is at present higher than at any previous period since the outbreak of the epidemic. Although every possible precaution is being exercised, the situation has become serious. Local hospitals are already crowded, and the illness of many of the doctors and nurses is resulting in unusual strain upon those who are still able to help in combating the spread of the epidemic.

On September 21, between the hours of noon and 10 o'clock at night, there were reported in Boston 18 deaths from influenza and 5 from pneumonia. Because of the increase in the number of cases, the Department of the Northeast has taken over the Robert B. Brigham Hospital for treatment of patients. This will provide 300 additional beds. At the Boston City Hospital there are 200 patients. It has been necessary to call out the full corps of enrolled nurses to aid in checking the malady. One hundred and six Red Cross nurses have been added to the available staff in the Boston Metropolitan District.

It is possible that the weather of the past week may have been partly responsible for the increased death rate, and a brighter aspect may be expected with the return of more favorable weather conditions. Dr. Walter L. Burrage, secretary of the Massachusetts Medical Society, is reported to have said, in reassuring the civilan population:

"There is no danger that the civilian population of Boston will be left without physicians because of the demand made by military authorities. The hospitals and the medical schools are the only places where any difficulty is experienced so far.

"The staffs of the medical schools have been seriously depleted by the demands for war service, and the same is true of the hospitals. Every doctor in the city has all he can possibly do to take care of his patients, but the epidemic would be no less severe if the doctors were all at home."

The death rate remains normal although the number of cases has increased. The following report has been made since Saturday, September 14:

	INFLUENZA	PNEUMONIA
Saturday	9	12
Sunday	15	9
Monday	23	5
Tuesday	28	13
Wednesday	30	13
Thursday	32	10
Friday	42	10
Total	179	72

At Simmons College, there have been 12 cases of influenza, none of which have been fatal.

There has been a slight decrease in the number of cases in the Army and Navy, and it is believed that the epidemic is now under control. At Camp Devens, there are now approximately 6000 cases of grip at the base hospital, and extra nurses have been summoned to take care of the men. The cantonment has not been quarantined, however, although passes, except in cases of urgent necessity, have been refused. Twenty deaths were reported on September 21. Among the Springfield troops, 150 cases have developed.

At the Naval Radio School in Cambridge the epidemic has been checked and the quarantine has been lifted. At Hingham, the number of cases is increasing, and 48 cases were reported on September 20. Eight deaths from Chelsea Naval Hospital have been reported. At the William A. Brooks Camp, Corey Hill, Brookline, 153 cases are now under treatment. Twenty-five hundred sailors from Commonwealth Pier have been sent to the camp at Framingham, in order to prevent the spread of the epidemic among these men. On September 21, the reports from camps in Greater Boston showed the following number of cases:

Hingham, 48; Boston Section, 25; Deer Island, 13; Cambridge Aviation Detachment, 16; Navy Yard and Hingham Ammunition Depot, 11 each; Radio School and Little Building headquarters, 8 each; Fore River, 2; Receiving Ship, 5; Bumpkin Island, Wakefield Rifle Range and Cadet School, one each.

The total number in the First Naval District has been 2858, with 97 deaths. In the Second Naval District, 5 deaths were reported on September 21. The epidemic has reached Camp Upton, New York, Camp Dix, New Jersey, and Camp Lee, Virginia. Thirteen cases have developed at Camp Humphries, Accotink.

Reports from places outside of Boston show an increased spread of the epidemic. Lynn has reported 3000 cases. There have been 5 deaths in Arlington and 3 in Weymouth. Haverhill has had 300 cases, and a schoolhouse has been converted into a temporary hospital for relief of the patients. There have been 20 deaths in Brockton and 3 in Malden. Milford is caring for more than 100 cases and Fitchburg for more than fifty. New Bedford has reported 87 new cases and 1 death. In Quincy the situation is serious. About 2000 men at Fore River and Squantum are ill. The Neighborhood Clubhouse in Quincy has been utilized for a hospital and extra physicians, Red Cross nurses and chauffeurs have been called. Six deaths have been reported. In New York, there have been 184 cases of influenza to date.

All the penal institutions in Massachusetts have been closed to visitors during the prevalence of the epidemic.

The schools have been closed in Bridgewater and West Bridgewater, Somerville, and Marblehead. There have been 153 cases reported in Boston public schools, which were closed Tuesday, September 24. In regard to the subject of closing the schools, Lewis R. Sullivan, member of the Governor's Council from Boston, is reported to have expressed the following opinion:

"Last year the School Committee closed the schools in order to save coal, and it seems to me that they should now be closed to protect the health of the little pupils who don't know how to protect their own health.

"The Board of Health has stated that the children should be given all the fresh air they can get, yet the School Committee restrains them for five hours a day in school rooms that generally are inadequately ventilated, and it is a serious question whether the ventilating systems do not carry the germs of this disease about the school rooms, so that pupils who do not actually come in contact with those having influenza may contract it in this way.

"I am told that in one room where sixty pupils are enrolled, only twelve are in attendance this morning, showing either that the others are ill or that their parents have the good sense to keep them out of school. Under such conditions I believe that the only sensible course before the School Committee is to order all of the schools closed at once."

The following statement has been issued by Bernard W. Carey, epidemiologist of the State Department of Health:

"Influenza is a markedly infectious condition, being perhaps one of the most readily transmitted by personal contact of any of the infectious diseases. The incubation period is apparently from a few hours to four days. Our greatest means of prevention and of checking this outbreak appears to be the isolation of all known cases and the isolation of all persons who show symptoms of a beginning coryza with its inflamed eyes, discharging nose and symptoms of a beginning 'cold.' To make this effective, all persons who show any of the above symptoms should be immediately sent home from their places of employment.

"We advise that all persons ill with influenza should receive competent medical advice, and should remain in bed until fully recovered from their illness. It is essential that people avoid all places where overcrowded or unsanitary conditions might exist, and to avoid, as far as possible, mingling with people who are coughing and sneezing, or who show signs of a catarrhal inflammation of nose or throat."

Surgeon-General Rupert Blue of the United States Public Health Service, has asked the Division of Medicine of the National Research Council, to determine the exact nature of the microbe, or microörganism, which is causing the so-called "Spanish" influenza.

To get prompt action Surgeon-General Blue has addressed a letter to Major Richard M.

Pearce, chairman of the National Research Council, which is represented in all the States, and has telegraphed all the state health officers to send to the public health service here all information as to the disease in their jurisdiction and also the appearance of it at any new center or foci.

Surgeon-General Blue has recommended dichloramine for use in destroying the germs of so-called "Spanish" influenza.

A circular received by a Boston firm of wholesale chemists, described the new preventative as follows:

> "Dichloramine is a powerful antiseptic and germicide, introduced by Dakin and Dunham for use in oil solution direct, or to be applied in the form of a spray.
>
> "Dichloramine should be dissolved in chlorcosane, Dakin's single solvent. This is an odorless and tasteless oil prepared by chlorinating hard paraffine wax.
>
> "Dichloramine has been shown to be a powerful and effective germicide, usable in high concentration and giving prolonged antiseptic action. It is employed as a spray or by direct local application in the treatment of infected wounds and injuries, also for prophylaxis and treatment of infections of the nasopharynx."

A warning to laymen bent on using germicide is contained in a circular of caution sent to all druggists by a well-known chemical supply house.

The warning to prospective users of dichloramine reads:

> "When you have inquiries for dichloramine, kindly inform the parties that this must be used in conjunction with chlorinated eucalyptol or chlorcosane. This product itself is not for extemporaneous use, as it is necessary to have either one of the two articles mentioned as a vehicle or holding medium.
>
> "We think it would be well to advise others than retail druggists that this should be dispensed on physicians' prescriptions only."

As a result of this advice, there is now a shortage of dichloramine in Boston.

Because of the epidemic, the Red Cross-Belgian Relief clothing drive has been postponed. The drive was to have been made by the Boston Metropolitan Chapter of the American Red Cross for the Belgian Relief, but it will be deferred until the civil, military and naval authorities have the influenza sufficiently under control to make it safe to collect clothing needed for the hundreds of thousands of sufferers in Belgium.

All plans for the drive were perfected and the teams were to continue their collections during the week. The organization will be retained and when it is considered judicious the machinery will be set in motion under the direction of Eliot T. Putnam, chairman of the campaign.

Dr. Richard G. Wadsworth, chairman of the Education Department of the Boston Metropolitan Chapter and medical adviser of the chapter, considered it inadvisable under the circumstances to have the collection made at this time and conferred with Dr. William C. Woodward, chairman of the Boston Board of Health, who agreed with him that it might not be safe to solicit clothing now, though he was willing that it might be continued if it could not conveniently be delayed.

It is to be deeply regretted that the epidemic has caused the deaths of many physicians. Among those who have lost their own lives in attempting to save the lives of others are included: Dr. F. J. Denning, South Boston; Dr. S. N. Hunting; Dr. Philip Buckley, South Boston; and Dr. Marland Eaton, Beverly.

PALEONTOLOGICAL EVIDENCES OF THE ANTIQUITY OF DISEASE.

The September issue of *The Scientific Monthly* contains an unusually interesting and enlightening article entitled, "Paleontological Evidences of the Antiquity of Disease," by Professor Roy L. Moodie. Investigation of the pathological conditions among fossil animals has shown that disease began during the great Coal Period. Both the new and the old world yield evidences which lead one to conjecture that an underlying fundamental condition must have been responsible for the ingress of disease and the consequent breaking down of the natural immunity which has previously protected both animal and plant life from the devastation of disease. So far as we know, animals of the Paleozoic and Proterozoic periods were free from disease.

Pathological conditions among fossil animals were first discovered in the enlarged stems of fossil crinoids. This condition was caused by the parasitic action of myzostomids. During the Carboniferous age, there was, also, a widespread development of fungi and bacteria, which were probably influential in the spread of disease. These forms take the form of coccoids, bacilli, diplococcoids, and micrococcoids, and were found in the fossilized feces of fishes in ancient wood and coal. Caries in the teeth of certain extinct fishes has also been discovered.

In the Permian period, the earliest known fractures occurred. A left radius of a primitive reptile, Dimetrodon, presents a well-marked case of fracture with subsequent healing, although there is still some intermediary callus. In the same beds, a fractured rib was found. The Jurassic of England furnishes the first evidences of necrosis and a suggestion of metastasis. These conditions were seen in the pathological nature of the bones of a crocodile, Metriorhynchus. In the Comanchian period, interesting lesions, resembling a modern hemangioma, were seen among dinosaurs.

Among the aquatic vertebrates of the Cretaceous period, there appears a condition comparable to modern cases of osteomyelitis. For the first time in the history of paleo-histology, perforating fibers of Sharpey are seen running through the sections. An example of osteoma is furnished by a dorsal vertebra of Platicarpus, a monasaur from the Cretaceous of Kansas. A radius of another monasaur shows on the proximal surface an extensive necrosis. A condition similar to modern alveolar pyorrhea was found in a monasaur jaw. The prevalence of disease reached a climax in the monasaurs, dinosaurs, pleiosaurs, and turtles of the Cretaceous period, and with the opening of the Tertiary the incidence of disease went sharply down, to rise again with the rise of mammalian life and reach a very high point during the Pleistocene.

The extinction of the large groups of reptiles at the close of the Cretaceous doubtless brought about the disappearance of many forms of disease which attacked those animals. Some forms of disease, however, persisted, as may be seen in cases of caries and alveolar osteitis with the associated forms of necrosis. The bones of a creodont carnivore from the Washakie Eocene show considerable exostoses and hypertrophy, suggesting modern conditions of nutritional disturbances resulting in the softening and lightening of the bones as in osteomalacia.

Mammals of the Oligocene period suffered from both disease and injury. The Ologocene dog, Daphaenus felinus, presents on the inferior portion of both radii a symmetrical tumor-like mass, the only example of duplicate exostoses in fossil animals.

In the Miocene period, a three-toed horse from South Dakota may be mentioned as an example, showing the nature of disease in this period. Indications of actinomycosis and alveolar osteitis, with the formation of some osteophytes, have been found in the bones of this animal.

No new ideas of pathology have been presented by the study of these ancient lesions, but the subject increases our vision as to the possibilities of medical history and extends our knowledge of the occurrence of disease back into geological time for many years.

THE DEATH OF DR. LEEN.

The present epidemic seems particularly fatal to physicians. Already nearly a dozen have died in and around Boston. Among them the passing of Thomas F. Leen, who died at the Carney Hospital, September 17, demands more than ordinary notice.

Dr. Leen was widely known, both as a good citizen and a wise physician. He was barely forty-one years old, and had been sick only a week. Like many others, he had worked incessantly and had been careless of one thing only—his own health. Apparently, he did not follow himself the advice which he had often given to his patients,—to take at least a brief rest each year, and to guard against long-continued strain and worry.

His untimely death emphasizes two points, each of importance. The first is almost a commonplace, that every man and woman over thirty should have a thorough physical examination at least once in two years; and those over forty-five, as often as once a year. This rule applies to physicians quite as definitely as to the laity; if it were followed there would be fewer deaths, fewer cases of physical collapse, less illness and a stronger generation.

The second point is that Dr. Leen stayed in Boston and overworked, when his personal preference would have been to accept a commission in the Medical Corps of the Army. He felt that his duty lay in Boston. It is a fair surmise that if he had been in service, he would be alive today; almost without exception the discipline and regular life in the Army have benefited medical men, and his duties would have been less arduous in service than at home. He lost, in common with other heads of hospital medical services, a large percentage of his brightest and most able assistants, and the volume of work increased immensely.

His work was essential to the community, and he and the others who are equally essential, should in all justice be put in uniform by the Government. The uniform is an honorable dress; it lends authority, makes for efficiency, and is a reward of merit. It carries with it the recognition of the country for work well done. Dr. Leen deserved it, but died without it; and his name does not appear where it should, on the roll of those who served their country faithfully. Let us trust that this will be remedied in the near future.

Dr. Leen leaves a kindly memory. Personally, he was quiet, cordial, earnest, modest and affectionate. He could not have had an enemy; and all of his acquaintances became his friends. Professionally, he was a careful, capable, thorough physician. He blended knowledge with humanity. He could sympathize without becoming sentimental. It was his lot to experience the pathos, and the satisfaction, of dying in the hospital for which he had worked so faithfully. He leaves to his family a gentle heritage and a good name, which is rather to be chosen than riches: to his hospital the record of unfailing duty and unstinting service; to his friends a remembrance of kindliness and loyalty; to the profession a standard of conscientious, unostentatious medical practice, to which we all may aspire.

MOBILIZATION OF WOMEN PHYSICIANS FOR ANESTHETIC SERVICE.

Every effort is being made to keep war surgery at top-notch efficiency and to provide every wounded soldier with safe, rapid and comfortable anesthesia both at the Front and in the base hospitals.

In this connection the following telegram is self-explanatory:

Dr. F. H. McMechan, Avon Lake, Ohio.
Washington, D.C., September 18, 1918.

Proceed at once to secure qualified women physician anesthetists under 45 years of age, of mental poise, as well as young women graduates who are competent for such service.

(Signed) Dr. Franklin Martin (per),
Dr. Emma Wheat Gillmore,
Chairman Women Physicians Committee,
Council National Defense,
Medical Section.

Those women physicians who are qualified for anesthetic service or who are competent to be intensively trained are requested at once, to get in touch with,

Dr. F. H. McMechan, *Secretary,*
Interstate Anesthetists,
American Anesthetists,
Avon Lake, Ohio.

MEDICAL NOTES.

National Tuberculosis Association.—A recent Bulletin of the National Tuberculosis Association contains a significant article comparing the death toll of tuberculosis and war, by Dr. Livingston Farrand, Director of the American Commission for the Prevention of Tuberculosis in France. Dr. Farrand's study of conditions in France makes it possible for him to predict the probable increase of tuberculosis among our civilian population, through the indirect effects of the war. He discloses conditions revealed by the draft, and makes an urgent appeal to America to exert her best effort in promoting anti-tuberculosis work. His statement follows:

"Though the sacrifice of lives in the present war has been so enormous as to make all previous losses on the battlefield appear slight in comparison, it nevertheless appears to be a fact that this frightful war mortality does not greatly exceed, and indeed may be exceeded by, the deaths from tuberculosis under ordinary conditions, if equal areas and periods be considered. In the four years since the war began, the total number of deaths from tuberculosis among the civilian population and in the armies of all the countries engaged has at least approximated the total number of soldiers killed in battle.

"The significance of this fact for America, now and after the war, is what I want to point out before returning to France. Though thus far our own casualties in the war have, of course been small, it is unlikely that any future American losses, after our army at the front has reached the full proportions in view, will surpass, for a given period, the total of deaths from tuberculosis among our civilian population. Actual deaths on the battlefield, or as a result of wounds, and not total casualties, are referred to in this comparison. While the total British casualties, for example, were 17,336 for the week ending July 6, actual deaths were 2736, or only 15% of the total. Each year the death toll from tuberculosis in the United States is between 150,000 and 200,000. This disease leads all others in mortality.

"Approximately 40,000 men, it would appear from the statistics available, were rejected in the first draft as tuberculous. Many, if not most, of these men have been going about freely in the community not yet aware that they were afflicted with the disease, and that they were sources of danger to others, especially children. Some have known that they had the disease, but have neglected their own condition and their responsibility as regards the health of their associates. Of the men who passed the draft boards, another 10,000, following more searching examination by medical officers of the Army, were subsequently discharged on account of tuberculosis, giving a combined total of 50,000.

"While the war has thus effectually disclosed conditions which existed before, rather than produced these conditions, it is also true that in indirect ways it has substantially increased the tuberculosis problem in the European countries involved. I refer not to the situation in the armies, where the mode of life often tends to reduce the extent of this disease, but to conditions which affect the civilian population. Increase in the price of food, clothing and housing, has exceeded general increase in wages. Consequently, among the lower wage groups, who comprise the mass of the population, food supply has diminished in both quantity and quality. This has produced a state of undernutrition, which in turn has reduced physical resistance to tuberculosis, particularly among children. Among adults, mental stress and worry have lowered general vitality and increased susceptibility to the disease. These indirect effects of the war are clearly evident in France, and will doubtless become increasingly evident in America as the war continues.

WAR NOTES.

WAR RELIEF FUNDS.—The French Wounded Fund has reached a total of $405,882.19 and the Serbian Fund now amounts to $126,329.59.

MALDEN PHYSICIAN AWARDED CAPTAINCY.—Dr. Harvey H. Howard of Malden has received a commission as captain in the Army Medical Corps, and will leave for Camp Upton on October 1. He was formerly a professor in the Rockefeller Foundation at Pekin, China.

APPOINTMENTS IN THE MEDICAL RESERVE CORPS.—The following appointments in the Medical Reserve Corps have been announced:

Captains. Charles A. Riley, Allston; G. S. Allen, Lawrence; H. C. Colgate, Rockland; E. Flagg, Boston.

First Lieutenants. Paul Appleton, Providence; J. R. Agnew, Chicopee.

13,347 NURSES IN WAR SERVICE.—Total enlistments of nurses through the American Red Cross from the beginning of the war to August 1 have been 13,347, against an estimated requirement of 27,000 before January 1, 1918. The States of Connecticut, New Jersey, and New York have led in recruiting.

To assist the recruiting, the country has been divided into thirteen districts, with definite quotas assigned.

GRAND CENTRAL PALACE HOSPITAL.—In view of the probability of transferring the Grand Central Palace to the Government for use as an army hospital, all tenants were ordered to vacate on September 15. The structure is ten stories high, each story containing 50,000 square feet of floor space. It has been used chiefly for big expositions and bazaars.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 21, 1918, the number of deaths reported was 491, against 248 last year, with a rate of 32.64, against 16.74 last year. There were 60 deaths under one year of age, against 44 last year.

The number of cases of principal reportable diseases were: diphtheria, 33; scarlet fever, 11; measles, 6; whooping cough, 23; typhoid fever, 4; tuberculosis, 53.

Included in the above were the following cases of non-residents: diphtheria, 2; whooping cough, 1; tuberculosis, 5.

Total deaths from these diseases were: diphtheria, 2; measles, 1; whooping cough, 7; tuberculosis, 29.

Included in the above were the following non-residents: diphtheria, 1; tuberculosis, 2.

QUINCY HOSPITAL.—The Quincy City Hospital, which since its institution in 1889 has been operated as a private corporation, will be taken over by the city, according to plans being made by the Quincy City Council.

WORK OF BABY HYGIENE ASSOCIATION IN JULY.—There is a large increase in the number of babies that are admitted to the Baby Hygiene Association for care, according to the report of Dr. J. Herbert Young, director of the Association, who declared at the regular monthly meeting of the trustees that during July the number cared for was 3428, or about

900 more than in July, 1917. Weekly registration is increasing more rapidly than in any previous year and has reached 3329. There are three more stations than last year, and all but two stations show an increase. East Boston in July cared for 518 in two stations, against 322 in one station. Two stations, North End Union and Elizabeth Peabody House, have a registration of more than 300.

The difficulty in getting conference physicians is becoming more acute, on account of recent hospital graduates going into the service. The second clinic for older children was opened at the South Bay Union July 8.

BOSTON DISPENSARY EVENING CLINIC FOR WOMEN.—The Boston Dispensary has opened an evening pay clinic for the treatment of diseases of women, at the request of Major Alec N. Thompson of the U. S. Army Medical Corps. Dr. Arthur K. Paine will be in charge with Dr. Grace E. Rochford as his assistant.

The clinic is intended for women of moderate means, who are employed during the day and are in need of special medical treatment, for which they are unable to pay the usual specialist's fees. It will be open Monday and Friday evenings from 6.30 to 8 o'clock. A fee to cover the cost of treatment will be charged.

Obituary.

THOMAS FRANCIS LEEN, M.D.

THOMAS FRANCIS LEEN, M.D., died at the Carney Hospital, where he was physician-in-chief, September 16, 1918, of pneumonia, following influenza.

The son of Michael C. and Mary J. Leonard Leen, he was born in Boston, August 15, 1875. He was educated at the Boston Latin School, Harvard College (1898) and Harvard Medical School. After receiving his M.D. in 1901, Dr. Leen served as house physician at the Boston City Hospital and at the Boston Lying-in Hospital, beginning practice in Charlestown in 1904 and becoming visiting physician at the Carney Hospital, succeeding Dr. Henry A. Christian, in 1907. He held the position of assistant in theory and practice at Harvard Medical School, and since 1913 had been lecturer on this subject. At one time Dr. Leen was a member of the Boston School Committee and he counted among his activities membership in Bunker Hill Council, Knights of Columbus, St. Vincent de Paul Society, the Catholic Alumni Sodality, Massachusetts Medical Society and American Medical Association.

In 1913 he married Miss Anna Jones Malley of Brookline, and she and one daughter survive him.

Miscellany.

AN UNPRECEDENTED OPPORTUNITY FOR WOMEN.

BY EMMA WHEAT GILLMORE, M.D.,

Chairman, Committee of Women Physicians, General Medical Board, Council of National Defense.

THE same year that gold was discovered in California, a lone pioneer received the first medical diploma which the United States had issued to a woman. Other colleges shortly followed the example of the one which had opened its doors to Elizabeth Blackwell, and today over fifty coeducational medical schools admit women upon the same terms as men.

There are more than 25,000 American physicians in military service at this writing, and the Council of National Defense is undertaking through the Volunteer Medical Service Corps,—an organization which has President Wilson's approval,—the task of classifying the qualifications of ninety thousand more. Of these, about six thousand are women, less than one-third of whom have registered with the General Medical Board.

Women of the profession, unless our qualifications are standardized and on file, can you not see that we are an unknown quality and quantity as far as the Government is concerned? In spite of the overwhelming difference in number—6000 women and over 100,000 men—and regardless of the fact that over twenty-two centuries have passed since Hippocrates wrote the immortal Oath and only sixty-nine years have elapsed since women entered the medical profession, the Volunteer Medical Service Corps has invited them to membership with the same impartial cordiality as it has the men.

During the last week in August application blanks for the Volunteer Medical Service Corps were mailed in franked envelopes to all legally qualified men and women in the United States who were not already in Government Service. Presumably a number of women have been overlooked because many of them are not members of medical societies, but this will speedily be corrected if a notification of the omission is sent to the Volunteer Medical Service Corps, Council of National Defense, Washington, D. C.

Meanwhile, medical women who possess a vision will see in the Volunteer Medical Service Corps an incomparable method of organization which will register their qualifications and place them in an identical coded class system with men physicians. This Corps is in reality an ideal procedure for mobilizing the military forces of our country for selective medical war service. Incidentally it will place loyal and patriotic medical women by the side of those men who are willing to give themselves. Even though all of them are not elected to membership, their names will be on file with the Government as willing to serve as far as their strength and capability will permit, and no one can point a finger at them and say "slacker."

Will a page be turned over in the history of American Medical Women upon which will be written the qualifications of 6000 of them; matching that group of English physicians known as the Scottish Women's Hospitals, which was so perfectly organized that they were able to hand over to their Government a constructively organized body of professional women for military service? Or shall we continue, as we have done in sporadic groups for the past 69 years, to demand recognition of men and at the same time neglect unanimously to affiliate with them in recognized medical societies, and to withhold our influence both with pen and vote when medico-social and medico-political and medico-scientific issues are at stake which shake the very foundation upon which medicine rests?

The body politic of the civilized world holds a prominent place for the profession of medicine in the near future. Are we to have a hand in shaping it? The Volunteer Medical Service Corps is big with promise for women of the medical profession if we take advantage of it to put ourselves on record. The response which the Council of National Defense receives from women who apply for membership will tell the tale as to whether they have or have not grasped and taken advantage of the unprecedented opportunity which this world's war for Democracy has opened up for them through the medium of the Volunteer Medical Service Corps.

Correspondence.

CONSERVATION OF PLATINUM.

Washington, D. C., September 17, 1918.
From: Lieut.-Colonel F. F. Simpson, M.C., N.A., Chief of Section of Medical Industry.
To: The Doctors and Dentists of the Country.
Subject: Utilization of Platinum in Unused Instruments.

1. In view of the limited supply of platinum in the country and of the urgent demand for war purposes, it is requested that every doctor and dentist in the country go carefuly over his instruments and pick out *every scrap of platinum* that is not absolutely essential to his work. These scraps, however small and in whatever condition, should reach Governmental sources without delay, through one of two channels:

a. They can be given to proper accredited representatives of the Red Cross who will shortly make a canvas for that purpose.

b. They may be sold to the Government through any bank under the supervision of the Federal Reserve Board. Such banks will receive and pay current prices for platinum.

By giving this immediate attention you will definitely aid the war program.

2. It is recognized that certain dental and surgical instruments requiring platinum are necessary, and from time to time platinum is released for that purpose. It is hoped, however, that every physician and every dentist will use substitutes for platinum for such purposes wherever possible.

3. *You are warned* against giving your scrap platinum to anyone who calls at your office without full assurance that that individual is authorized to represent the Red Cross in the matter.

Lieut.-Col. F. F. Simpson. M.C., N.A.,
Chief of Section of Medical Industry.

PLATINUM CAUTERY TIPS.

Boston, Sept. 24, 1918.

Mr. Editor:—

There have recently been many attempts on the part of a tall, good-looking fellow to secure cautery tips (for their platinum content) from doctors. This fellow represents himself as a Government agent offering $5.00 apiece for tips. If you won't sell, he either later telephones, asking to borrow your cautery from your nurse, representing himself over the 'phone as from Dr. So-and-So's office—or he comes back when you are out and *steals* your tips—as he did with me a short time ago. He has been reported to the police, but wouldn't it be a good plan to advertise him pretty thoroughly in the JOURNAL?

Yours very truly,
E. H. R.

RECENT DEATHS.

DR. LUCY W. TUCK, a member of the household at the Home for Aged Women, Roxbury, died there on September 19, at the age of ninety years. Weakness due to advanced age was the cause of death. Formerly she was a resident of South Weymouth.

Dr. Tuck was one of the earliest pioneers among women to take up practice, and she did not receive the regular medical and technical training which women have been given in recent years. She was interested in occult and metaphysical matters and wrote a book upon these subjects many years ago.